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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/858,299	05/15/2001	Zezhang Hou	AUD1P004C1	2952

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EXAMINER

NI, SUHAN

ART UNIT PAPER NUMBER

2615

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/858,299

Applicant(s)

HOU, ZEZHANG

Examiner

Suhan Ni

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 9-11, 13-23 and 26-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7, 9, 11, 13-15, 22-23, 26-27, 29-33 and 37-40 is/are rejected.
- 7) ☒ Claim(s) 4, 10, 16-21, 28 and 34-36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/27/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

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**DETAILED ACTION**

1. The Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group **Art Unit 2615**.

***Response to Election/Restriction***

2. This communication is responsive to the provisional election made with traverse on 08/18/2006. In view of the traversal statement, the applicant's argument is persuasive. Therefore, the restriction/election requirement is vacated and a new ground of rejection is set forth below for examination of all the claims amended on 12/23/2005.

***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the **"the first and second microphones are spaced apart by about 3 mm"** (claim 40) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112, 1<sup>st</sup> Paragraph***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 40 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The feature of **"the first and second microphones are spaced apart by about 3 mm"** is not clearly supported by specification.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) The invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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5. Claims 1-3, 5, 7, 9, 11, 13-15, 22-23, 26-27, 29-33 and 37-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Sigwanz et al. (U. S. Pat. - 6,539,096).

Regarding claims 1, 7, 22-23, 26-27 and 37-39, Sigwanz et al. disclose an adaptive directional sound processing system for a hearing aid, comprising: a least two microphones (1a, 1b) spaced apart by a predetermined distance, each of said microphones producing an electronic sound signal; a delay circuit (3) that delays the electronic sound signal from at least one of said microphones by an adaptive delay amount; a subtraction circuit (4, 7) operatively connected to said microphones and said delay circuit, said subtraction circuit producing an output difference signal from the electronic sound signals following said delay circuit; and a delay amount determination circuit (9) operatively coupled to receive the output difference signal, said delay amount determination circuit produces a delay control signal that is supplied to said delay circuit so as to control the adaptive delay amount as claimed

Regarding claims 2-3, 5, 9, 11 and 29, Sigwanz et al. further disclose the system, wherein the adaptive delay amount varies so as to directionally suppress undesired sound inherently (please see Fig.) as claimed.

Regarding claims 13-15, Sigwanz et al. further disclose the system, wherein the adaptive delay amount induced by said delay circuit is controlled such that a delay increment is added to a previously determined adaptive delay amount inherently (please see Fig.) as claimed.

Regarding claims 30-31, Sigwanz et al. further disclose the system, wherein said combining (7) comprises adding the first microphone output and the delayed second microphone output as claimed.

Regarding claims 32-33, Sigwanz et al. further disclose the system, wherein said adapting determines (9) the adaptive delay amount based on change in energy on the output signal.

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6. Claims 1-3, 5, 7, 9, 11, 13-15, 22-23, 26-27, 29-33 and 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Ribic (U. S. Pat. - 5,214,709).

Regarding claims 1, 7, 22-23, 26-27 and 37-39, Ribic discloses an adaptive directional sound processing system for a hearing aid, comprising: a least two microphones (MI1, MI2) spaced apart by a predetermined distance, each of said microphones producing an electronic sound signal; a delay circuit (6) that delays the electronic sound signal from at least one of said microphones by an adaptive delay amount; a subtraction circuit (3-4) operatively connected to said microphones and said delay circuit, said subtraction circuit producing an output difference signal from the electronic sound signals following said delay circuit; and a delay amount determination circuit (7) operatively coupled to receive the output difference signal, said delay amount determination circuit produces a delay control signal that is supplied to said delay circuit so as to control the adaptive delay amount as claimed

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sigwanz et al. (U. S. Pat. - 6,539,096).

Regarding claim 40, Sigwanz et al. do not clearly teach a 3mm distance between microphones as claimed. Since providing a set directional microphone desirably apart on a hearing air faceplate is very well known in the art, it therefore would have been obvious to one

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skilled in the art at the time the invention was made to be motivated to provide a set suitable directional microphone desirably apart, such as about 3 mm, on a faceplate of the hearing aid, in order to effectively manufacture the hearing aid.

***Allowable Subject Matter***

8. Claims 4, 10, 16-21, 28 and 34-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

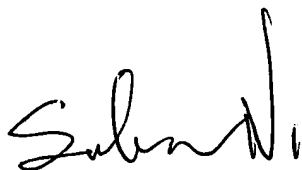
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Suhan Ni** whose telephone number is (571)-272-7505, and the number for fax machine is (571)-273-7505. The examiner can normally be reached on Tuesday and Thursday from 10:00 am to 8:00 pm, and may be reached on Monday, Wednesday and Friday from 10:00 am to 8:00 pm. If it is necessary, the examiner's supervisor, **Sinh N. Tran**, can be reached at (571)-272-7564.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (**PAIR**) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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12. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (571)-272-2600, or please see <http://www.uspto.gov/web/info/2600>.

October 28, 2006

A handwritten signature in cursive script, appearing to read "Suhanni".

**SUHAN NI**  
**PRIMARY EXAMINER**